Deploying a Machine Learning Model on Lattice Semiconductor

This ML Model was trained to predict the 10-day forward stock price.

Model features are RSI and Closing Price with the data set used beginning from the first trading day of the stock till end of May 2020

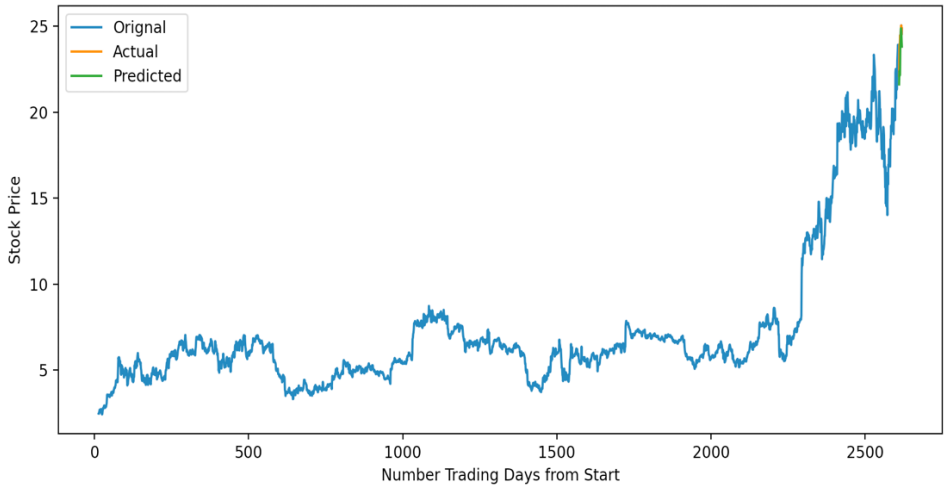
After training the model for 50 epochs the following results were obtained.

Mean Squared Error on test data was 0.0148

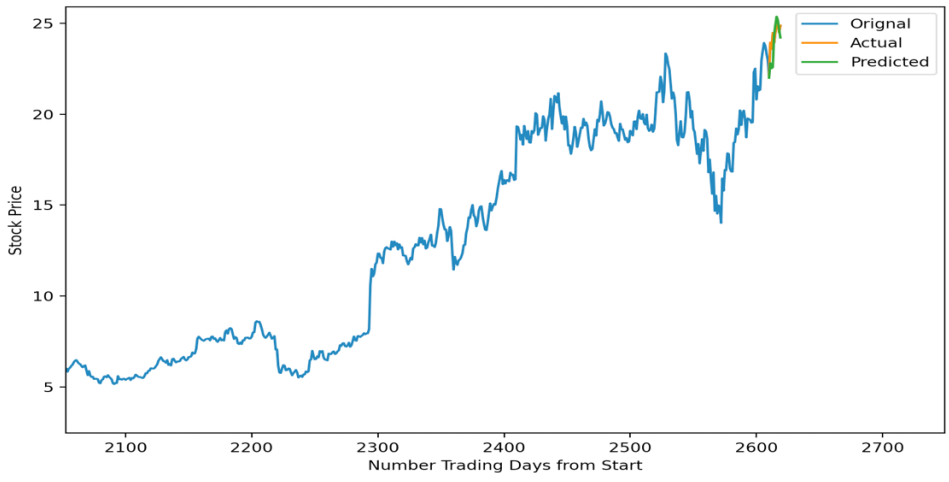
```
Epoch 50/50

  32/2076 [..............................] - ETA: 0s - loss: 0.6180
 288/2076 [===>..........................] - ETA: 0s - loss: 0.5856
 416/2076 [=====>........................] - ETA: 0s - loss: 0.5470
 576/2076 [=======>......................] - ETA: 0s - loss: 0.5372
 800/2076 [==========>...................] - ETA: 0s - loss: 0.5392
 960/2076 [============>.................] - ETA: 0s - loss: 0.5751
1152/2076 [===============>..............] - ETA: 0s - loss: 0.5680
1376/2076 [==================>...........] - ETA: 0s - loss: 0.5786
1600/2076 [======================>.......] - ETA: 0s - loss: 0.6141
1856/2076 [=========================>....] - ETA: 0s - loss: 0.6257
2048/2076 [============================>.] - ETA: 0s - loss: 0.6185
2076/2076 [==============================] - 1s 275us/step - loss: 0.6214
0.014844594551966721
```

Graph of Stock Price Predicted by the Model



Graph of Stock Price Predicted by the Model (Zoomed in)



Model Review

The Model perform satisfactorily on test data based on a MSE of 0.0148.

Using the model to predict stock price for the first 10 trading days of June **(Refer to Graph Above)** the model was also able to map and predict the trend of the stock price with considerable accuracy.

Deploying the Model for an actual Trade

After feeding the trained model the actual stock price and RSI of Lattice Semiconductor from May 29 to June 11 to predict the stock price of Lattice Semiconductor from 12 June to 25 June, the following predictions were obtained.

```
[[26.217756]
 [26.272581]
 [26.754202]
 [27.815699]
 [28.620434]
 [30.160112]
 [29.431255]
 [29.452593]
 [28.75366 ]
 [26.485785]]
```

The first item in the array 26.217 would be the predicted 12 June 2020 (Fri) Stock Price of Lattice Semiconductor followed by 15 June 2020 (Mon) and so on.

The result suggested a bullish trend for the stock after it sold off in the first two weeks of June 2020 possibly due to fears of a second wave of coronavirus infections.

Trade Execution

The actual closing stock price for lattice on 11 June was 25.52 and with the model predicting a bullish trend on the stock, on 12 June (Fri), I placed an actual 26000 USD CFD trade on my Saxo Trader Account to bet on a rebound in share price.

Instrument	#	Status	L/S	Amount ▼	Open	Close	Stop	Limit	P/L	P/L (SGD)	% Price
− CFDs (1)										1,761	
CFD Lattice Semiconductor Corp.		Closed	Square	1,000	25.90	27.20			1,273 USD	1,761	5.02%

Post-Trade Review

The trade was closed next Tuesday at 27.20 USD. Although the model was clearly still predicting for more upside in the stock (28-30 USD) in the following days, I decided to overwrite it and realized the gains due to developing news of a second wave in China and weak trading of its correlated peers AMD and Nvidia which were in the red on Tuesday.

Nonetheless, it was interesting to observe and deploy a ML model on an actual trade and see the bullish prediction coming true.

Actual Closing Price of Lattice Semiconductor from Yahoo Finance

Date	Open	High	Low	Close*	Adj Close**	Volume
Jun 16, 2020	27.27	27.75	26.45	27.42	27.42	1,164,199
Jun 15, 2020	25.69	26.61	25.41	26.58	26.58	833,200
Jun 12, 2020	26.38	26.46	25.35	26.10	26.10	1,402,600
Jun 11, 2020	26.61	27.08	25.49	25.52	25.52	1,762,300

In addition, comparing the actual stock price and the predicated stock price, the model was also considerably close.

Moving forward, it will be interesting to see how the actual stock price of Lattice Semiconductor trades from 17 June onwards relative to the model.